

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE K		PAGE 1 OF 64 PAGES		
2. AMENDMENT/MODIFICATION NO. 0005		3. EFFECTIVE DATE 29 NOVEMBER 2001		4. REQUISITION/PURCHASE REQ. NO. N/A		5. PROJECT NO. (If applicable)	
6. ISSUED BY DEFENSE ENERGY SUPPORT CENTER 8725 JOHN J. KINGMAN ROAD, SUITE 4950 FT. BELVOIR, VA 22060-6222 BUYER/SYMBOL –M. NICHOLSON/DESC-EPP PHONE (703) 767-9652		CODE SCO600		7. ADMINISTERED BY (If other than Item 6) CODE			
8. NAME AND ADDRESS OF CONTRACTOR (NO., street,city,county,State,and ZIP Code)				X	9a. AMENDMENT OF SOLICITATION NO. SP0600-01-R-0074		
					9b. DATED (SEE ITEM 11) June 4, 2001		
					10a. MODIFICATION OF CONTRACT/ORDER NO.		
					10b. DATED (SEE ITEM 13)		
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<p>[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [] is extended, [X] is not extended</p> <p>Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment;(b) By acknowledging receipt of this amendment on each copy of the offer submitted; or(c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.</p>							
12. ACCOUNTING AND APPROPRIATION DATA (If required)							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.							
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. I2.05 CHANGES-FIXED PRICE (AUG 87)						
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b)						
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: FAR 43.01						
	OTHER (Specify type of modification and authority)						
E. IMPORTANT: Contractor [] is not, [] is required to sign this document and return <u>1</u> copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)							
Please See Following Pages							
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME OF CONTRACTING OFFICER VERNA L. VELEZ			
15B. NAME OF CONTRACTOR/OFFEROR BY _____ (Signature of person authorized to sign)		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA BY <u>Verna L. Velez</u> (Signature of Contracting Officer)		16C. DATE SIGNED 29 Nov 2001	

This amendment is issued to incorporate the following changes to solicitation SP0600-01-R-0074.

1. Section J Attachment J02 – Fort Jackson Natural Gas Distribution System is deleted in its entirety and Attachment J02 (A) is hereby added. Prospective offerors should refer to this attachment in proposal preparation.

Attachment J02(A)

Fort Jackson Natural Gas System

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J02 U.S. Army Fort Jackson Natural Gas Distribution System

J02.1 Fort Jackson Overview

The mission of Fort Jackson is to provide the Army with basically trained, disciplined, motivated and physically--fit soldiers who espouse the Army core values and are focused on teamwork. Advanced Individual Training (AIT) provides the Army with disciplined, motivated and physically fit, apprentice-level soldier mechanics who espouse the Army's core values and are focused on teamwork. The Pre-Command Course (PCC) provides the Army with leaders who are highly proficient in the initial entry training process.

Fort Jackson further supports the following major activities and other tenant and affiliated organizations and designated reserve component units in accomplishing their missions. It also supports the members of the Fort Jackson community in sustaining their Quality of Life--physically, mentally, and spiritually.

Major Activities/Tenants include:

- ?? Basic Combat Training (BCT)
- ?? Basic Training Tour
- ?? 1st Basic Combat Training Brigade
- ?? 1st Battalion, 28th Infantry Regiment
- ?? 2nd Battalion, 28th Infantry Regiment
- ?? 2nd Battalion, 13th Infantry Regiment
- ?? 3rd Battalion, 13th Infantry Regiment
- ?? 2nd Battalion, 60th Infantry Regiment
- ?? 4th Training Brigade
- ?? 1st Battalion, 61st Infantry Regiment
- ?? 2nd Battalion, 39th Infantry Regiment
- ?? 1st Battalion, 34th Infantry Regiment
- ?? 187th Ordnance Battalion
- ?? Victory Brigade and Support of Basic Training
- ?? 120th AG Battalion
- ?? 748th BOD
- ?? 5th Training Brigade
- ?? 1st Battalion, 307th Regiment
- ?? 2nd Battalion, 307th Regiment
- ?? 3rd Battalion, 307th Regiment
- ?? 1st Battalion, 345th Regiment
- ?? 2nd Battalion, 345th Regiment
- ?? 2nd Battalion, 347th Regiment
- ?? Advanced Individual Training (AIT)
- ?? Chaplain Center & School
- ?? Drill Sergeant School

- ?? Pre-Command Course
- ?? Soldier Support Institute
- ?? Adjutant General School
- ?? Finance School
- ?? NCO Academy
- ?? Recruiting and Retention School
- ?? Moncrief Army Community Hospital
- ?? 379th Military Police Detachment (Criminal Investigation Division)
- ?? Law Enforcement Activity
- ?? Savannah Veterinary Command
- ?? Other Military and Civilian Organizations

J02.2 Natural Gas System Description

J02.2.1 Natural Gas Distribution System Fixed Equipment Inventory

The U.S. Army Fort Jackson gas distribution system consists of all appurtenances physically connected to the distribution system from the point in which the distribution system enters the Base, and/or Government ownership currently starts, to the point of demarcation defined by the real estate instruments. Generally, the point of demarcation will be the building footprint. The system may include, but is not limited to, pipelines, valves, regulators, and meters. The following description and inventory is included to provide the Offeror with a general understanding of the size and configuration of the distribution system. The Offeror shall base the proposal on site inspections, information in the bidder's library, other pertinent information, and to a lesser degree the following description. Under no circumstances shall the Contractor be entitled to any rate adjustments based on the accuracy of the following description and inventory.

J02.2.1.1 Description

Fort Jackson natural gas is supplied by the local utility, South Carolina Electric and Gas Company (SCE&G). The local utility, by contract provides interruptible service to the installation in three categories to Fort Jackson. The Category 7 natural gas has the highest priority for interruption (is most frequently interrupted during the heating season). The Category 7 natural gas is used by the Fort Jackson's largest energy plant (CEP 2 at building 4333). A meter, that is part of the Fort Jackson distribution system, meters category 7 natural gas and the natural gas is backed up by oil. The two smaller energy plants (CEP 1 at building 2288 and CEP 3 at building 1699 are Category 6 and have second highest priority for interruption. The category 6 natural gas is also metered by distribution system meters at each of the two smaller energy plants. The Category 6 natural gas is backed up by oil. The remainder of the installation gas is category 3 and has the lowest priority for interruption (least frequently interrupted) and is backed up by an LP/air blending system that injects LP air into the distribution system. The LP/air blending system is next to the largest energy plant. The installation can use either or both of the alternate fuels (LP or oil) instead of natural gas if they are cheaper than natural gas. Natural gas supply for the main cantonment area enters the reservation boundary through dual utility-owned and maintained master meters near the southwest area of the Installation and west of the Main (Jackson Blvd.) Gate. Delivery pressures can be as high as 150 psi depending on flows on the supply system. There is a regulator on the Fort Jackson side of the utility's metering station and the pressure is set to reduce pressure to about 70 psi. When the installation Liquified Petroleum (LP)/air blending system is on line, it produces a pressure in excess of the regulator pressure setting and gas flow from the utility ceases.

Government ownership of gas utilities begins at the SCE&G master meter. The pressure is reduced from a range of 80 to 150 psib by a government owned pressure regulator at the main metering station. The pressure is further reduced from the approximately 70 psi pressure at 16 regulator stations located throughout the distribution system to low-pressure ranging from 25-40 psi. The laundry is equipped with a standby propane system and is required by government to interrupt use of natural gas during Category 3 gas service interruptions and the government charges the government owned/contractor operated laundry a rate derived from the Category 3 interruptible natural gas utility rate. .

J02.2.1.2 **Inventory**

Table 1 provides a general listing of the major natural gas system fixed assets for the U.S. Army Fort Jackson distribution system included in the purchase. The system will be sold in an “as is, where is” condition without any warrant, representation, or obligation on the part of the Government to make any alterations, repairs, or improvements. All ancillary equipment attached to and necessary for operating the system, though not specifically mentioned here in, is considered part of the purchased utility.

TABLE 1
Fixed Inventory
Gas Distribution System Inventory, U.S. Army Fort Jackson

Item	Size	Quantity	Unit	Approximate Year of Construction
Pipe	<2"	129,565	Linear Feet	1971
	2"-21/2"	46,815	Linear Feet	1971
	3"	16,435	Linear Feet	1971
	4"	24,900	Linear Feet	1969
	5"	1,774	Linear Feet	1984
	6"	13,852	Linear Feet	1969
	8"	6,474	Linear Feet	1973
	10"	19,764	Linear Feet	1981
Building Services		579	Ea	1969
Pressure Reduction Station		9	Ea	1974
Main Valves		231	Ea	1969
In Line Meters		38	Ea	1978
Regulation Stations		16	Ea	Refurbished 1994

Notes:

LF = Linear Feet

EA = Each

J02.2.2 Natural Gas Distribution System Non-Fixed Equipment and Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and Table 3 lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Contractor shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

TABLE 2
Spare Parts
Natural Gas Distribution System U.S. Army Fort Jackson

Qty	Item	Make/Model	Description	Remarks
None Identified				

TABLE 3
Specialized Equipment and Vehicles
Natural Gas Distribution System U.S. Army Fort Jackson

Description	Quantity	Location	Maker
None Identified			

J02.2.3 Natural Gas System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
Manuals, Drawings, and Records
Natural Gas Distribution System U.S. Army Fort Jackson

Qty	Item	Description	Remarks
None			

J02.3 Current Service Arrangement

Fort Jackson natural gas is supplied by the local utility, South Carolina Electric and Gas Company (SCE&G). Gas supply for the main cantonment area enters the reservation boundary through a utility-owned and, maintained, dual-metered, master service near the southwest area of the Installation and west of the Main (Jackson Blvd.) Gate.

J02.4 Secondary Metering

The Base will require secondary meters for internal billings of their reimbursable customers, utility usage management, and energy conservation monitoring. The Contractor shall assume full ownership and responsibility for existing and future secondary meters IAW Paragraph C.3.

J02.4.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings once a month for all secondary meters IAW paragraphs C.3.3 and J02.4.2 below.

TABLE 5
Existing Secondary Meters
Gas Distribution System U.S. Army Fort Jackson

BLDG NO.		USER/FUNCTION	METER LOCATION	METER S/N	REASON FOR METER
1155		RES ENGR	SIDE OF BLDG AT ENTRANCE	1035439	REIMBURSMENT
1558	P	LAUNDRY	FRONT BLDG MIDDLE		REIMBURSMENT
1644		RNSUCFSU3	REAR OF BLDG	279220	REIMBURSMENT
1699	P	CENTRAL ENERGY PLANT #3	OUTSIDE BLDG NEAR WASHINGTON ST.		CAT 6 USAGE
1701		120TH	INSIDE FENCE AT GATE AND REAR BLDG	1007782	REIMBURSMENT
1701		120TH	INSIDE FENCE AT GATE AND REAR BLDG	A517824	REIMBURSMENT
2100		4TH BDE MAINT SCHOOL	REAR BLDG NEAR MIDDLE		DHEC REPORT
2159		PX ANNEX	SIDE OF BLDG	52780597	REIMBURSMENT
2288	P	CENTRAL ENERGY PLANT #1	BACK OF BLDG TOWARD CHEATHAM ST		CAT 6 USAGE
2369		POST EXCHANGE (PX)	BLDG MECHANICAL ROOM	83118379	REIMBURSMENT
2369		PX OFFICE	BLDG MECHANICAL ROOM		REIMBURSMENT
2522		LION CLUB	LEFT SIDE NEAR ENTRANCE		REIMBURSMENT
2540		4TH BDE TRNG	NEAR REAR LOADING DOCK		DHEC REPORT
3630		O CLUB 7809072	REAR NEAR LOADING DOCK	7809072	REIMBURSMENT
4120		PX ANNEX	REAR OF BLDG	54496951	REIMBURSMENT
4333	P	CENTRAL ENERGY PLANT #2	SIDE OF BLDG. NEAR HILL ST.		CAT 7 USAGE
4500	X	MONCRIEF ARMY HOSPITAL			REIMBURSMENT
4575	X	TROUP MEDICAL CLINIC			REIMBURSMENT
4590	X	DENTAL CLINIC			REIMBURSMENT
4710		CREDIT UNION	REAR AT DRIVE IN LANE	59797	REIMBURSMENT
4712		PX (TO BE REPLACED)	IN BREEZE WAY NEAR UTILITY ROOM	51693	REIMBURSMENT
4716		COMMISSARY	LEFT SIDE BUILDING AT CORNER	51854	REIMBURSMENT
5615		SCHOOL	REAR BLDG AT FURNACE ROOM	N209044	REIMBURSMENT
5650		PX	REAR BLDG AT LOADING DOCK	1018766	REIMBURSMENT
5670		PX ANNEX BURGER KING	REAR OF BLDG	866362466	REIMBURSMENT
5700		NCO CLUB	REAR BLDG NEAR TRANSFORMER	56054833	REIMBURSMENT
5715		SCHOOL	SIDE BLDG AT LOADING DOCK		REIMBURSMENT
5900		SCHOOL	RIGHT SIDE OF LOADING DOCK	12153	REIMBURSMENT
5900		SCHOOL	FRONT MIDDLE OF BLDG	175	REIMBURSMENT

5975	YOUTH CENTER	REAR OF BLDG IN FENCED AREA		REIMBURSMENT
6000	PALMETTO LODGE	RIGHT SIDE ENTRANCE	8456322 60	REIMBURSMENT
6510	COMMUNITY ACTIVITY CENTER	REAR BLDG AT COOLING TOWER		REIMBURSMENT
9810	USAR 120TH	REAR OF BLDG AT TRANSFORMER	5800	REIMBURSMENT
10440	PX ANNEX	INSIDE FENCED AREA AT LOADING DOCK	26067	REIMBURSMENT
12500	PX PHOTO IN VIDEORAMA	FRONT BLDG ON RIGHT		REIMBURSMENT
13000	US ARMY RESERVE	FRONT RIGHT SIDE MAINT ROOM	91S5618480	REIMBURSMENT
13100	US ARMY RESERVE	FRONT - RIGHT SIDE BLDG	U 851258	REIMBURSMENT
13200	US ARMY RESERVE	INSIDE FENCE NEAR BLDG RIGHT SIDE		REIMBURSMENT
AREA X	EM HOUSING	FENCED AREA IMBODEN AND FIASON CT	33352	REIMBURSMENT
AREA X	OFFICERS QTRS GAS	FENCED AREA		REIMBURSMENT

Meters with a "P" in the second column are capable of usage profiling and are telephonically readable.

Meters with an "X" in the second column are to be upgraded to be capable of usage profiling and be telephonically readable.

J02.4.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in Table 6. New secondary meters shall be installed IAW Paragraph C.13, Operational Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Paragraphs C.3, and J02.4.2 below.

TABLE 6
New Secondary Meters
Gas Distribution System U.S. Army Fort Jackson

Meter Location	Meter Description
Replace or upgrade existing meters in Table 5 that have an X in the second column with usage profiling telephonically readable meters or add the telephonically readable capability to existing meters and provide the government software necessary for reading them.	Telephonically readable Natural Gas Meter. Software to be provided to the government to allow them to be read via the telephone.

J02.5 Submittals

The Contractor shall provide the Government monthly submittals for:

1. Invoicing (IAW paragraph G.2) for the previous months' services. The Contractor's invoice shall be prepared in a format proposed by the Contractor and accepted by the Contracting Officer.
2. Monthly Outage Report for the previous month. The Contractor's monthly outage report shall be prepared in the format presented in Attachment 1.
3. Meter Reading Report in support of internal billings, energy usage management, and monitoring. The Contractor's monthly meter reading report shall be prepared in the format presented in Attachment 2.

4. System Efficiency Report. If, at any time during the contract, as required by Paragraph C.3 the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer.

J02.6 Energy Savings Projects

IAW paragraph C.3, Utility Service Requirement, the following projects have been implemented by the Government for managing and monitoring:

?? None

J02.7 Service Area

The service area(s) include all facilities that use natural gas located at U.S Army Fort Jackson boundaries.

J02.8 Off-Installation Sites

None.

J02.9 Specific Transition Requirements

IAW Paragraph C.13, Transition Plan, **Table 7** lists service connections and disconnection’s required upon transfer, and **Table 8** lists the improvement projects required upon transfer of the U.S Army Fort Jackson natural gas distribution system.

TABLE 7
Service Connections and Disconnections
Natural Gas Distribution System U.S Army Fort Jackson

Location	Description
None Identified (see note)	

NOTE: No new facilities requiring service connections were identified as of the beginning of FY01. Required service connections and disconnections requirements will be provided to the Contractor as the requirements become known. The installation's minor construction master plan will be a predictor of future facilities to be added as well as demolished.

TABLE 8
System Improvement Projects Natural Gas Distribution System U.S. Army Fort Jackson

Project Location	Project Description
None Identified	

J02.10 Natural Gas Distribution System Points of Demarcation

The point of demarcation is defined as the point on the distribution system where ownership changes from the Grantee to the building owner. The table below identifies the type of service and general location of the point of demarcation with respect to the building for each scenario. During the operation and maintenance transition period, concurrence on specific demarcation points will be documented during the joint inventory of facilities.

Point of Demarcation	Applicable Scenario	Sketch
The point of demarcation is the down stream side of the natural gas meter.	Natural gas service to the building is metered.	
The point of demarcation is the down stream side of the individual facility pressure regulator.	Natural gas service to the building is regulated but not metered.	
Point of demarcation is the down stream side of the closest apparatus to the exterior of the facility	More than one apparatus is connected to the service line feeding the facility.	
Point of demarcation is where the piping penetrates the building envelope.	No meter or regulator exists at the facility.	

J02.11 Unique Points of Demarcation

The following table lists anomalous points of demarcation that do not fit any of the above scenarios.

Building No.	Point of Demarcation Description
None	

2. Section J Attachment J03 – Fort Jackson Wastewater Collection System is deleted in its entirety and Attachment J03 (A) is hereby added. Prospective offerors should refer to this attachment in proposal preparation.

Attachment J03(A)

Fort Jackson Wastewater System

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J03 Fort Jackson Wastewater System

J03.1 Fort Jackson Overview

The mission of Fort Jackson is to provide the Army with basically-trained, disciplined, motivated, and physically--fit soldiers who espouse the Army's core values and are focused on teamwork. Advanced Individual Training (AIT) provides the Army with disciplined, motivated and physically fit, apprentice, level soldier mechanics who espouse the Army 's core values and are focused on teamwork. The Pre-Command Course (PCC) provides the Army with leaders who are highly proficient in the Initial Entry Training (IET) process.

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- ?? 2nd Battalion, 60th Infantry Regiment
- ?? 4th Training Brigade
- ?? 1st Battalion, 61st Infantry Regiment
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- ?? Victory Brigade and Support of Basic Training
- ?? 120th AG battalion
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- ?? 5th Training Brigade
- ?? 1st Battalion 307th Regiment
- ?? 2nd Battalion 307th Regiment
- ?? 3rd Battalion 307th Regiment
- ?? 1st Battalion 345th Regiment
- ?? 2nd Battalion 345th Regiment
- ?? 2nd Battalion 347th Regiment
- ?? Advanced Individual Training (AIT)
- ?? Chaplain Center & School
- ?? Drill Sergeant School
- ?? Pre-Command Course
- ?? Soldier Support Institute

- ?? Adjutant General School
- ?? Finance School
- ?? NCO Academy
- ?? Recruiting and Retention School
- ?? Moncrief Army Community Hospital
- ?? 379th Military Police Detachment (Criminal Investigation Division)
- ?? Law Enforcement Activity
- ?? Savannah Veterinary Command
- ?? Other Military and Civilian Organizations

J03.2 Wastewater System Description

J03.2.1 Wastewater Collection System Fixed Equipment Inventory

The Fort Jackson wastewater collection system facilities consists of all appurtenances physically connected to the collection system from the point of demarcation defined by the real estate instruments to point in which the collection system exits the base and current Government ownership ends. Generally, the point of demarcation will be the building footprint. The system may include, but is not limited to, pipelines, lift station, and manholes. The following description and inventory is included to provide the Offeror with a general understanding of the size and configuration of the collection system. The Offeror shall base the proposal on site inspections, information in the bidder's library, other pertinent information, and to a lesser degree the following description. Under no circumstances shall the successful Contractor be entitled to any rate adjustments based on the accuracy of the following description and inventory.

J03.2.1.1 Description

Fort Jackson has one treatment facility that treats waste from a recreation area referred to as Weston Lake and for all other wastewater collection relies on the City of Columbia and its Metropolitan Wastewater Treatment Plant to treat all wastewater. Sewage from throughout the Installation exists near the southwest area of the Post (Main Gate) in a 30-inch line, that passes under Interstate-77, and is metered and recorded in an military owned and maintained flow metering station near the Installation boundary on south west side of Interstate-77. The average daily flow is approximately 3.2 million gallons per day.

Training ranges have no sanitary sewers; chemical toilets are commonly used and are serviced on a regular basis by service contract with the removed contents discharged into a convenient manhole.

The Collection System is described as follows: Three major drainage basins serve Fort Jackson. The west basin generally parallels Interstate-77 on the west and bounded on the east by Jackson Boulevard in the southern reaches and Marion Avenue north of Imboden Street. The central basin is east of Jackson Boulevard and generally bounded by Semmes Lake and Lee Road north of Hill Street. The east basin lies east of Semmes Lake and east of Lee Road.

Septic tanks with tile drainage fields serve isolated facilities not connected to the main collection system; however, these elements are not included in the privatized infrastructure and therefore have not been inventoried.

The existing collection system at Fort Jackson is generally constructed of two different types of materials – vitrified clay and cast iron pipe – with manholes at approximately 350-foot intervals.

Terra cotta sewer pipes exists in older areas of the Installation. The pipe diameter of the system varies from a 4-inch force main (Transite) to 12-inch gravity flow collection lines most of which were installed in the early 1940's. Initial construction piping that has deteriorated is currently being replaced with PVC pipe as failure occurs.

The wastewater collection system presently consists of approximately 324,270 linear feet of collection mains 6 inches and larger.

Fort Jackson maintains seven sewage lift stations used for transferring wastewater from lower elevations to locations within the collection system where gravity flow conditions prevail.

Water Permit Limits. The seven Fort Jackson outfalls are permitted under the NPDES, South Carolina Department of Health and Environmental Control administered program. Permit Number SC0003786.

J03.2.1.2 Inventory

Table 1 provides a general listing of the major collection system fixed assets for the Fort Jackson wastewater collection system included in the purchase. The system will be sold in a “as is, where is” condition without any warranty, representation, or obligation on the part of Government to make any alterations, repairs, or improvements. Ancillary equipment attached to, and necessary for, operating the system, though not specifically mentioned herein, is considered part of the purchased utility.

TABLE 1
Fixed Inventory
Wastewater Collection System facilities Inventory Fort Jackson

Item	Size (in.)	Quantity	Unit	Approximate Year of Construction
Vitrified Clay/Cast Iron Pipe/Terra Cotta Clay Pipe	4	4,905	Lf	1964-1978
	6	94,015	Lf	1964
	8	138,633	Lf	1964
	10	20,614	Lf	1964
	12	11,220	Lf	1964
	15	20,557	Lf	1964
	18	15,187	Lf	1964
	21	6,687	Lf	1964
	24	5,541	Lf	1964-1990
	30	11,805	Lf	1986-1990

PVC = polyvinyl chloride

Item	Size (in.)	Quantity	Unit	Approximate Year of Construction
Lf = linear feet				
Ea = each				
Manholes		1,039	Ea	
Treatment Plants		1	Ea	1981
Lift Stations		7	Ea	1990
Primary Meter 30 inch We r on west side of I-77 (Remote recorder housed in building 2007 belongs to City of Columbia)		1	Ea	Mid 1970's

J03.2.2 Wastewater Collection System Non-Fixed Equipment and
Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and Table 3 lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Contractor shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

TABLE 2
Spare Parts
Wastewater System

Qty	Item	Make/Model	Description	Remarks
See Note Immediately Below				

NOTE: Fort Jackson maintains an inventory of spare parts for the wastewater collection system. Contents of this inventory vary as items are used and/or purchased. Availability of this inventory to the new owner will be negotiated before or during the transition period.

TABLE 3
Specialized Equipment and Vehicles
Wastewater System

Description	Quantity	Location	Maker
None.			

J03.2.3 Wastewater System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
Manuals, Drawings, and Records
Wastewater System

Qty	Item	Description	Remarks
See Note Immediately Below			

NOTE: Fort Jackson maintains a limited collection of technical manuals, drawings and records on the installed components of the wastewater collection system. This information will be transferred to the new owner during the transition period. System maps will be available in the bidders’ library.

J03.3 Current Service Arrangement

Fort Jackson has no treatment facilities for the cantonment area, but relies on the City of Columbia and its Metropolitan Wastewater Treatment Plant to treat all wastewater. Sewage from throughout the cantonment area exists near the southwest area of the Post (Main Gate) in a 30-inch line that passes under Interstate-77, and is metered and recorded in an military owned and maintained flow metering station near the Installation boundary. The average daily flow is approximately 3.2 million gallons per day.

J03.4 Secondary Metering

There are currently no requirements for secondary metering of wastewater included in this contract. Any future wastewater secondary metering requested by the Government will be IAW paragraph C.3, Future Secondary Meters.

J03.4.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings once a month for all secondary meters IAW paragraph J03.5 below.

TABLE 5
Existing Secondary Meters
Wastewater System

Meter Location	Meter Description
There are no secondary meters in the Fort Jackson wastewater collection system that are maintained and read by Fort Jackson. If such meters are added in the future, information will be provided to the new owner of the Fort Jackson wastewater system for the performance of meter reading.	

J03.5 Submittals

The Contractor shall provide the Government monthly submittals for:

- 1. Invoicing (IAW paragraph G.2) for the previous month's services. The Contractors invoice shall be prepared in a format proposed by the Contractor and accepted by the Contracting Officer.
- 2. Monthly Service Interruption Report for the previous month.
- 3. Meter Reading Report in support of internal billings, Wastewater usage management, and monitoring.
- 4. System Efficiency Report. If required by Paragraph C.3 the Contractors shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer.
- 5. System malfunctions, discharges or overflows will be reported immediately to the Contracting Officer’s designee. The Contractor, as the owner/operator of the system, must notify the State of Virginia of any discharges or overflows immediately.

J03.6 Infiltration and Inflow (I&I) Projects

IAW paragraph C.3, Utility Service Requirement, the following projects have been implemented by the Government for managing and monitoring I&I.

None

J03.7 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the Fort Jackson and Charles Wood Area boundaries.

J03.8 Off-Installation Sites

There are no off-installation sites associated with this scope.

J03.9 Specific Transition Requirements

IAW Paragraph C.13, Operational Transition Plan, **Table 6** lists service connections and disconnections required upon transfer, and **Table 7** lists the improvement projects required upon transfer of the Fort Jackson & Charles Wood wastewater collection system.

TABLE 6
Service Connections and Disconnections
Wastewater System

Description

NOTE: None identified as of the beginning of FY01. Required service connections and disconnections will be provided to the Contractor as the requirements become known. The installation's minor construction master plan

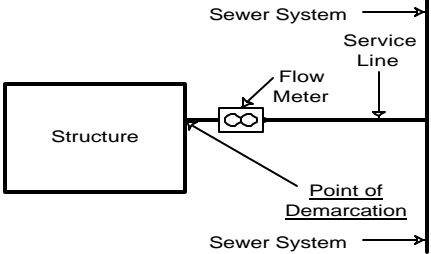
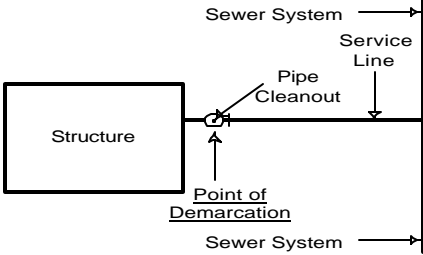
will be a predictor of future facilities to be added as well as demolished.

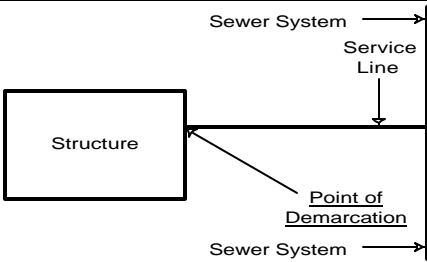
TABLE 7
System Improvement Projects
Wastewater System

Project Location	Project Description
New Main Sewer Metering Facility	Replace the existing main wastewater flow meter on the west side of Interstate-77 with a new metering station. The installation shall include a manhole on 30' Concrete Pipe, an integral flume, flow meter, facility for housing the metering electronics and telephone service for remote reading. The new meter shall measure and log flow and cumulative installation wastewater and be located on the east side of Interstate-77. Metering station shall be complete with integral electronics capable logging flow and integrated flow and storing and reporting them to a remotely located computer with telephone modem. The software and any special equipment for remotely obtaining wastewater flow data from the meter via telephone shall be provided to the City of Columbia as well as to the government.

J03.10 Wastewater System Points of Demarcation

The point of demarcation is defined as the point on the wastewater collection pipe where ownership changes from the Grantee to the building owner. The table below identifies the general locations of these points with respect to the building for each scenario. During the operation and maintenance transition period, concurrence on specific demarcation points will be documented during the joint inventory of facilities.

Point of Demarcation	Applicable Scenario	Sketch
Point where the service line enters the structure	Sewer system flow meter is located on the service line entering the structure.	
Point of demarcation is the cleanout device if it is within 10' of the building perimeter	No flow meter exists and a sewer system cleanout is located within 10 feet of the building perimeter on the service line.	

Point of Demarcation	Applicable Scenario	Sketch
Point where the service line enters the structure <i>Note: A new cleanout device should be installed within 10' of building during any stoppage or maintenance action. This will then become the new point of demarcation.</i>	No flow meter or cleanout (within 10 feet of the building) exists on the service line entering the structure.	 <p>The sketch illustrates a rectangular structure. A horizontal line representing the service line enters the structure from the right. An arrow points to this entry point, labeled 'Point of Demarcation'. Above the structure, a horizontal line with an arrow pointing right is labeled 'Sewer System'. Below the structure, another horizontal line with an arrow pointing right is also labeled 'Sewer System'. A vertical line on the right side of the structure is labeled 'Service Line' with an arrow pointing down to the entry point.</p>

Unique Points of Demarcation

The following table lists anomalous points of demarcation that do not fit any of the above categories.

Building No.	Point of Demarcation Description
None	

3. Section J Attachment J04 – Fort Jackson Water Distribution System is deleted in its entirety and Attachment J04 (A) is hereby added. Prospective offerors should refer to this attachment in proposal preparation.

Attachment J04(A)

Fort Jackson Water System

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LIST OF ATTACHMENTS

1. Flushing Plan
2. Standard Operating Procedure (SOP), Surveillance of Drinking Water
3. SOP Well Operation
4. Emergency Preparedness Plan Drinking Water Systems
5. SOP Fire Hydrant Maintenance

J04 Fort Jackson Water System

J04.1 Fort Jackson Overview

The mission of Fort Jackson is to provide the Army with basically trained, disciplined, motivated, and physically fit soldiers who espouse the Army's core values and are focused on teamwork. Advanced Individual Training (AIT) provides the Army with disciplined, motivated and physically fit apprentice-level soldier mechanics who espouse the Army's core values and are focused on teamwork. The Pre-Command Course (PCC) provides the Army with leaders who are highly proficient in the Initial Entry Training (IET) process.

Fort Jackson further supports the following major activities and other tenant and affiliated organizations. It also supports the members of the Fort Jackson community in sustaining their Quality of Life -- physically, mentally and spiritually.

Major Activities/Tenants include:

- ?? Basic Combat Training (BCT)
- ?? Basic Training Tour
- ?? 1st Basic Combat Training Brigade
- ?? 1st Battalion, 28th Infantry Regiment
- ?? 2nd Battalion, 28th Infantry Regiment
- ?? 2nd Battalion, 13th Infantry Regiment
- ?? 3rd Battalion, 13th Infantry Regiment
- ?? 2nd Battalion, 60th Infantry Regiment
- ?? 4th Training Brigade
- ?? 1st Battalion, 61st Infantry Regiment
- ?? 2nd Battalion, 39th Infantry Regiment
- ?? 1st Battalion, 34th Infantry Regiment
- ?? 187th Ordnance Battalion
- ?? Victory Brigade and Support of Basic Training
- ?? 120th AG Battalion,
- ?? 748th EOD

- ?? 5th Training Brigade
- ?? 1st Battalion 307th Regiment
- ?? 2nd Battalion 307th Regiment
- ?? 3rd Battalion 307th Regiment
- ?? 1st Battalion 345th Regiment
- ?? 2nd Battalion 345th Regiment
- ?? Advanced Individual Training (AIT)
- ?? Chaplain Center & School
- ?? Drill Sergeant School
- ?? Pre-Command Course
- ?? Soldier Support Institute
- ?? Adjutant General School
- ?? Finance School
- ?? NCO Academy
- ?? Recruiting and Retention School
- ?? Moncrief Army Community Hospital
- ?? 379th Military Police Detachment (Criminal Investigation Division)
- ?? Law Enforcement Activity
- ?? Savannah Veterinary Command
- ?? Other Military and Civilian Organizations

J04.2 Water System Description

Source of Supply: Fort Jackson is supplied water by the City of Columbia, South Carolina, at six connections located on the Installation at intervals along the west reservation (I-77) boundary and along the southern boundary. Flows are metered using three 8-inch and three 6-inch compound meters owned by the provider. One-way flow is assured at each connection using double-check type backflow prevention devices located in below-ground vaults or exposed in above-ground configurations on the Fort Jackson side of the interfaces with the utility provider. Fort Jackson is contractually guaranteed water at the maximum rate of 6.5 million gallons per day.

System Storage: Potable water is stored in a 2.0 million-gallon, elevated tank located east of the Hampton Parkway - Lee Road intersection – one of the highest elevations on the Post. The tank was constructed in 1992, includes internal cathodic protection, and is connected to the distribution system through an altitude valve and 12-inch main. Chlorination facilities installed in a fiberglass, pre-fabricated structure located adjacent to the tank maintain chlorine residuals at the required levels. A 1.0 million-gallon standpipe sited immediately west of the elevated tank has been taken off the distribution system and is now scheduled for demolition.

A 1.3 million-gallon ground storage reservoir situated northeast of the Marion Avenue-Pickens Avenue intersection and constructed in the 1940s has not been operational for some years and is scheduled for demolition.

Distribution System: The distribution system serves the main cantonment area. The existing potable water distribution has approximately 384,500 linear feet of mains and laterals in sizes ranging from 4 to 16 inches in diameter. Sizes smaller than 4-inches, totaling 85,000 feet make up the remainder of the system and supply individual structures, warehouse facilities, and family housing units. Cement, concrete, cast iron, and PVC are the most common materials found throughout the system. The system includes main valves, pressure reducing stations, post-indicator valves, monitoring and warning systems, fire hydrants, and an elevated storage facility.

Pressure reducing valves are strategically placed throughout the system to effect the two-zone operation. Pressures throughout the system generally range from 40 to 80 pounds per square inch (psi).

Six well systems designed with hydro-pneumatic pressurization and sodium hypochlorite disinfection systems serve the training ranges and the Weston Lake Recreation Area east of the main cantonment; however, these facilities are to be included in the privatized facilities and are reflected in the accompanying inventory. The irrigation systems serving landscaped areas and golf courses are not included in the inventory.

J04.2.1 Water System Fixed Equipment Inventory

Table 1 provides the inventory that reflects the typical components that comprise the water system and does not contain all attributes for the Fort Jackson water system included in the purchase. The system will be sold in a “as is, where is” condition without any warranty, representation, or obligation on the part of Government to make any alterations, repairs, or improvements. Ancillary equipment attached to, and necessary for, operating the system, though not specifically mentioned herein, is considered part of the purchased utility.

TABLE 1
Fixed Inventory
Water Distribution System Inventory Fort Jackson

Item	Size	QuantityUnit	Approximate Year of Construction
PVC & Cast Iron pipe, Cement	<2 in.	19,522 lft	1970
	2	44,394 lft	1970
	2.5	7,414 lft	1970
	3	13,592 lft	1970
	4	26,426 lft	1970
	6	154,302 lft	1970
	8	94,680 lft	1970
	10	43,574 lft	1970
	12	42,457 lft	1970
	16	23,089 lft	1970
Building Services		790 ea	1970
Main Valves		598 ea	1970
Post Indicator Valves		33 ea	1970
Fire Hydrants		575 ea	1970
Water Storage Tank	2,000,000 gal	1 ea.	1989
Water Storage Tank	1,000,000 gal	1ea	1941 (not being used)
PUMP STATIONS Magruder and Pickens		2 EA	1972
Wells		6 ea w/chlorination	Varies

Notes:

PVC = polyvinyl chloride
lft = linear feet
Ea = each
Gal = gallon

J04.2.2 Water Distribution System Non-Fixed Equipment and Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and Table 3 lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Contractor shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

TABLE 2
Spare Parts
Water Distribution System

Qty	Item	Make/Model	Description	Remarks
1	Diesel Engine	Allis Chalmers	Pump Drive	Emergency drive for Pump Mcgruder Pump Station
See Note Immediately Below				

NOTE: Fort Jackson maintains an inventory of spare parts for the water distribution system. Contents of this inventory vary as items are used and/or purchased. Availability of this inventory to the new owner will be finalized upon contract implementation.

TABLE 3
Specialized Equipment and Vehicles
Water Distribution System Fort Jackson

Description	Quantity	Location	Maker
None			

J04.2.3 Water System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
Manuals, Drawings, and Records
Water Distribution System

Qty	Item	Description	Remarks
See Note Immediately Below			
	Flushing and Sampling Records	Records of flushing and sampling will be provided to the contractor in order that continuity in the process can be assured. Flushing and Sampling plan that complies with South Carolina State Drinking Water Act R 44-55 and State Primary Drinking Water Regulations R 611-58. These regulations are available at http://www.scdhec.net/eqc/water/html/dwper	Flushing plans are required in the South Carolina Department of Health and Environmental Control (SCDHEC) "State Primary Drinking Water Regulations Amended 1988 and 1990", R.61-58. According to R.61-58.4, Pumping, Storage, and

	mit.html. The Fort Jackson Flushing and Sampling Plans are attachments 1 and 2.	Distribution Facilities, Section D.
Backflow Test Logs	A log of Backflow Prevention device testing shall be maintained.	Backflow prevention devices that are required by SCDHEC for health and safety are required to be tested on an annual basis.
Fire Hydrant Maintenance Records	The Fort Jackson Standard Operating Procedure for Fire Hydrant Maintenance is attachment 5.	Fire Hydrant Flow Testing and maintenance logs are required and shall be reported annually.

NOTE: Fort Jackson maintains a limited collection of technical manuals, drawings and records on the installed components of the water collection system. This information will be transferred to the new owner during the transition period. System maps will be available in the bidders’ library.

J04.3 Current Service Arrangement

Fort Jackson is supplied water by the City of Columbia, South Carolina, at six connections located on the Installation at intervals along the west reservation (I-77) boundary and along the southern boundary. Flows are metered using three 8-inch and three 6-inch compound meters. One-way flow is assured at each connection using double-check type flow prevention devices located in below ground vaults or exposed above ground configurations. Fort Jackson is contractually guaranteed water at the maximum rate of 6.5 million gallons per day.

J04.4 Secondary Metering

The Base may require additional secondary meters for internal billings of their reimbursable customers, utility usage management, and energy conservation monitoring. The Contractor shall assume full ownership and responsibility for existing and future secondary meters IAW Paragraph C.3.

J04.4.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings once a month for all secondary meters IAW paragraph J04.5 below.

TABLE 5
Existing Secondary Meters
Water Distribution System

BLDG		METER	METER	REASON
NO.	USER/FUNCTION	LOCATION	S/N	FOR METER
1558	LAUNDRY	VAULT REAR BLDG 50 FT FROM DOCK	C3935339	REIMBURSEMENT
1558	LAUNDRY	VAULT REAR BLDG 50 FT FROM DOCK		REIMBURSEMENT
1701	120TH	VAULT FRONT OF BLDG	7096405	REIMBURSEMENT
1890	MEDICAL CLINIC			REIMBURSEMENT
2139	PX ANNEX	REAR BLDG INSIDE EQUIP	30952609	REIMBURSEMENT
2445	VET CLINIC			REIMBURSEMENT

2498	VET CLINIC			REIMBURSEMENT
2522	LION CLUB	VAULT REAR BLDG	96339120	REIMBURSEMENT
3240	POST EXCHANGE	VAULT RIGHT SIDE OF BLDG		REIMBURSEMENT
3305	MCGRUDER CLUB	INSIDE UTILITY ROOM	9014413	REIMBURSEMENT
3630	O CLUB WATER	INSIDE UTILITY ROOM		REIMBURSEMENT
3656	GOLF CLUB	INSIDE UTILITY ROOM	92527857	REIMBURSEMENT
4110	NEW PX			REIMBURSEMENT
4120	PX ANNEX	RIGHT OF BUILDING (FAILED & CARS PARK OVER METER)		REIMBURSEMENT
4169	PX ANNEX	ON LEFT INSIDE MECHANICAL RM	9014414	REIMBURSEMENT
4323	DENTAL CLINIC			REIMBURSEMENT
4500	MONCRIEF HOSPITAL			REIMBURSEMENT
4575	TROUP CLINIC			REIMBURSEMENT
4590	DENTAL CLINIC			REIMBURSEMENT
4709	WACHOVIA	VAULT FRONT OF BANK	9014391	REIMBURSEMENT
4710	CREDIT UNION	VAULT FRONT OF BLDG NEAR DOOR	F03781	REIMBURSEMENT
4712	PX (TO BE REPLACED)	VAULT AT FIRE HYDRANT NEAR CREEK	F013779	REIMBURSEMENT
4712	PX (TO BE REPLACED)	INSIDE UTILITY ROOM	F013779	REIMBURSEMENT
4716	COMMISSARY	VAULT RIGHT FRONT OF BUILDING	7131572	REIMBURSEMENT
5330	DENTAL CLINIC			REIMBURSEMENT
5475	PX ANNEX	INSIDE EQUIP ROOM AT WALL	9015214	REIMBURSEMENT
5615	SCHOOL	VAULT REAR CORNER OF BUILDING	284	REIMBURSEMENT
5615	SCHOOL	VAULT HOOD ST RIGHT FRONT 50 FT	96367885	REIMBURSEMENT
5650	PX	VAULT FRONT BLDG AT SIDE WALK	21824769	REIMBURSEMENT
5670	PX ANNEX BURGER KING	REAR OF BLDG		REIMBURSEMENT
5700	NCO CLUB	VAULT FRONT OF BLDG	9014409	REIMBURSEMENT
5715	SCHOOL	VAULT CORNER OF IMBODEN & ADAMS CT	11459766	REIMBURSEMENT
5900	SCHOOL	VAULT LEFT SIDE DRIVE IN		REIMBURSEMENT
6000	PALMETTO LODGE COMMUNITY ACTIVITY CENTER	BASEMENT INSIDE FURNACE ROOM	7108576	REIMBURSEMENT
6510	USAR 120TH	VAULT REAR BLDG NEAR ROAD	259933120	REIMBURSEMENT
9810	PX ANNEX	VAULT FRONT OF BLDG	C069313	REIMBURSEMENT
10440	US ARMY RESERVE	VAULT FRONT BLDG NEAR HYDRANT	F013780	REIMBURSEMENT
13000	US ARMY RESERVE	VAULT REAR BLDG NEAR CENTER	95027755	REIMBURSEMENT
13100	US ARMY RESERVE	RIGHT SIDE FRONT DOOR	96075355	REIMBURSEMENT
13200	US ARMY RESERVE	VAULT INSIDE FENCE NEAR BLDG	9412229	REIMBURSEMENT
AREA	GENERAL QTRS	RIGHT NEAR CAR PORT OF BLDG 3600		REIMBURSEMENT
AREA	GENERAL QTRS	50 ' REAR ENTRANCE OF BLDG 3600		REIMBURSEMENT
AREA	GENERAL QTRS	LEFT SIDE QTRS 3600		REIMBURSEMENT
AREA	OFFICERS QTRS	VAULT CORNER SEEMES & CUSTER LOOP		REIMBURSEMENT
AREA	GOLF WATER	LEFT SIDE ROAD VET CLINIC		REIMBURSEMENT
AREA	OFFICER'S QTRS	VAULT CORNER OF SEEMES & KNIGHT RD		REIMBURSEMENT
AREA	OFFICER'S QTRS	SOUTH END OF BLDG 3748 NEAR REFUSE		REIMBURSEMENT
AREA	GOLF (6 INCH)	RIGHT SIDE SEEMES RD AT PINE TREE	S 6945607	REIMBURSEMENT
AREA	GOLF CLUB	LEFT SIDE IVEY ROAD AT BUMP	96387260	REIMBURSEMENT
AREA	GOLF CLUB (8")	VAULT SEEMES & CHESTNUT LEFT SIDE	BP8945603	REIMBURSEMENT
LOOP	EM QTRS (FAILED LOOP)	VAULT CHESTNUT & SERGEANT JASPER		REIMBURSEMENT
LOOP	EM QTRS (FAILED LOOP)	VAULT NEAR WATER TANK RT SIDE OF RD		REIMBURSEMENT

J04.5 Submittals

, the Contractor shall provide the Government monthly submittals for:

6. Invoicing (IAW paragraph G.2) for the previous month's services. The Contractor's invoice shall be prepared in a format proposed by the Contractor and accepted by the Contracting Officer.
7. Monthly Service Interruption Report for the previous month.
8. Meter Reading Report in support of internal billings, water usage management, and monitoring.
9. System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer.
10. System malfunctions, breaks, pressure loss and contamination episodes will be reported immediately to the Contracting Officer's representative, DLE Environmental Division and the South Carolina DEHC. .
11. Flushing, sampling, sample tests and chlorination reports. These reports to the extent feasible shall be in the same format as submittals to DHEC and that comply with operating permit maintenance requirements. Sample tests will be conducted in a laboratory that is EPA and South Carolina certified. Fort Jackson's Standard Operating Procedure, Surveillance of Drinking Water and Fort Jackson's Flushing Plan are Attachments 1 and 2. Web site <http://www.scddec.net/eqc/water/html/dwpermit.html> has the South Carolina DHEC requirements.

7. Outage Report: The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall be submitted by the 25th day of each month and shall include the following information for Scheduled and Unscheduled outages:

Scheduled: Include requestor, date, time, duration, facilities affected, feedback provided during outage, outage notification form number, and digging clearance number.

Unscheduled: Include date, time and duration, facilities affected, response time after notification, completion times, feedback to be provided at time of outage, are specific item failure, probability of future failure, long-term fix, and emergency digging clearance number.

8. Meter Reading Report. The monthly meter reading report shall show the current and previous month's readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each month for the previous month. Meter reading reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award)

9. Well Operation Report will be provided on a monthly basis in the format required by DHEC and that comply with operating permit maintenance requirements.

Well Log Report. This monthly report allows determination of water pumped and treated. The report will include metered run time on pumps or metered water output and chemical usage for water treatment. Also recorded will be residual chlorine and ph. The personnel operating performing well checks on a daily basis shall be "Water Plant Operators" in accordance with South Carolina DHEC requirements. (Information for this report will begin to be accumulated on a daily basis beginning on the date of award. The first months report shall include data logged by the government operators prior to award.)

10. Fire Hydrant Report. The contractor shall submit an annual report of hydrant maintenance and hydrant water flow in accordance with Standing Operating Procedure Fire Hydrant Maintenance, Attachment 5.
11. System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to the Contracting Officer’s designee. This report will be provided upon award and shall indicate capacity deficiencies, planned maintenance.
12. Annual Backflow Testing Report. Testing of backflow prevention devices shall be scheduled and approved prior to start of work and shall not interfere with government operations. Testing and the report forms shall be approved by South Carolina DHEC. See the Library file C5.01-001a Sheet B for a listing of existing backflow prevention devices. Check flow devices within facilities will be tested until backflow devices are installed outside the facility as described in Table 7.

J04.6 Energy Savings and Conservation Projects

IAW paragraph C.3, Utility Service Requirement, the following projects have been implemented by the Government for energy conservation purposes:

Leak Detection program

J04.7 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the Fort Jackson area boundaries to include areas served by water wells.

J04.8 Off-Installation Sites

There are no off-installation sites associated with this scope.

J04.9 Specific Transition Requirements

The process of transferring of the water distribution system-operating permit with the SCDHEC will begin on the date of award. The contractor will assume responsibility for the water distribution system and wells and immediately begin operating, data recording, reporting and testing as required for maintaining the operating permits (on the date of the notice to proceed). The government will provide its records for the previous 12 months to include backflow prevention tests, well logs, flushing records, water sampling records and fire hydrant maintenance and flow test records.

IAW Paragraph C.13, Operational Transition Plan, **Table 6** lists service connections and disconnections required upon transfer, and **Table 7** lists the improvement projects required upon transfer of the Fort Jackson Water System.

TABLE 6
Service Connections and Disconnections
Water Distribution System

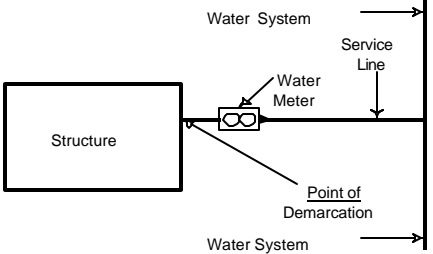
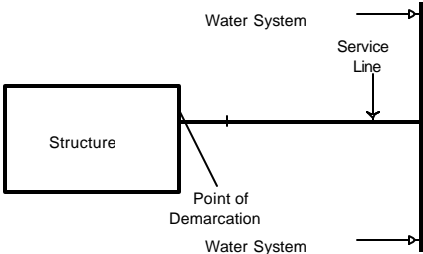
Description
NOTE: No new facilities requiring service connections were identified as of the beginning of FY01. Required service connections and disconnections requirements will be provided to the Contractor, as the requirements become known. The installation's minor construction master plan will be a predictor of future facilities to be added as well as demolished.

TABLE 7
System Improvement Projects
Water Distribution System

Project Location	Project Description
Various buildings without exterior shutoff	Add shut off valves and backflow prevention devises appropriate for each facility serviced and at agreed upon locations. The shutoffs are to be within 25 ft of the facility if possible. The facilities needing shutoff valves in the service lines to serve as a point of demarcation will be determined during a joint facility walk down in order to establish demarcation between the contractor owned distributions system and the facility. A schedule for adding the valves and backflow prevention devices will be described in the contractor's proposal. A double check valve will be installed on all service lines that SCDHEC regulations do not require backflow prevention devices.
Facilities with backflow prevention devices within the building envelope.	Contractor shall submit a plan and schedule for installing backflow prevention devices on all its service lines to facilities that now have the devices within the envelope of the facility or have valves more than 25 ft from the facility. Until the contractor has installed backflow prevention devices exterior to the facility, the contractor will perform annual testing of the devices within the facility. When the contractor has installed backflow prevention devices on service line exterior to the facility, servicing the devices within the building will be discontinued (the devices will be abandoned in place.
Sample Points	Contractor shall submit a plan and schedule for adding sample points on the distribution system to take the place of water taps on facilities served.

J04.10 Water System Points of Demarcation

The point of demarcation is defined as the point on the water distribution system where ownership changes from the Grantee to the building owner. The table below identifies the general locations of these points with respect to the building for each scenario. During the operation and maintenance transition period, concurrence on specific demarcation points will be documented during a joint walk down and inventory of facilities.

Point of Demarcation	Applicable Scenario	Sketch
Water Meter, Backflow Device, or Valve (closest apparatus to the exterior of the structure)	Water meter, backflow device, or valve is located on the service line entering the structure within 25 feet of the exterior of the structure.	
Point of demarcation is the nearest shutoff valve outside the building if it is within 25' of the building perimeter.	No backflow prevention device exists and shutoff valve is located within 25 feet of the building perimeter on the service line for the building.	

J04.10.1 Unique Points of Demarcation

The following table lists anomalous points of demarcation that do not fit any of the above categories.

Building No.	Point of Demarcation Description
None	

J04.11 Plants and Towers

The following table lists anomalous points of demarcation that do not fit any of the above categories

Table 10

Plants and Towers Water Distribution System – Fort Jackson

Description	Facility Number	State Coordinates	Other Information
Water Tower 2,000,000		Available in base maps	
Water Tower (Stand Pipe) 1,000,000		Available in base maps	Not in use.

The contractor is to provide a proposal value for demolition of the existing 1,000,000 gallon water tower, which is currently not in use.

Attachment 1

05 Nov 01

FLUSHING PLAN

FORT JACKSON, SOUTH CAROLINA

Purpose

The purpose of this plan is to provide a procedure and schedule for annual flushing of water mains in the potable water distribution system at Fort Jackson. Flushing plans are required in the South Carolina Department of Health and Environmental Control (SCDHEC) "State Primary Drinking Water Regulations Amended 1988 and 1990", R.61-58. According to R.61-58.4, Pumping, Storage, and Distribution Facilities, Section D:

"Flushing - Where dead-end mains occur they shall be provided with a fire hydrant if flow and pressure are sufficient, or with an approved flushing hydrant or blow-off for flushing purposes.

This plan will also designate the valves and hydrants to be open and/or closed for each section of water main in the potable water distribution system that is to be flushed.

Responsibility

Water main flushing shall be the sole responsibility of the Fort Jackson Directorate of Public Works. The Utilities Shop, Operations and Maintenance Division, will have the primary responsibility for maintaining this plan and ensuring that all drawings concerning the locations of all valves and hydrants including the valves for fire hydrants are updated as required.

Maintenance of the valves and hydrants will be the sole responsibility of the Operation and Maintenance Division, Utilities Shop In addition the Utilities Shop will keep all maintenance records on file for each individual valve and hydrant. The maintenance records include all inspection reports, the master valve record, and maintenance reports. The Fort Jackson Fire Department, DPW shall test and maintain the records on all hydrants

Also, the performance of inspections and the opening and closing of valves will be the primary responsibility of the Utilities Shop; however, it is anticipated that contract work will be required to augment the efforts of the Utilities Shop.

Inspection and Testing

All valves and hydrants shall be inspected and tested at least annually in accordance with the Fort Jackson "Hydrant Plan" and the Fort Jackson "Valve Plan". The inspection will include testing for ease of operation, lubrication of the valve, hydrant flow, hydrant static pressures, hydrant residual pressures, and determination of whether detailed maintenance is required.

Flushing Plan Cont.

Flushing

All water distribution mains will be flushed at least annually. This flushing will reduce the buildup of sediment in water lines caused by the flocculation of minerals contained in the water. Flushing will also help reduce the buildup of "hard water" deposits in the lines that can reduce the effective inner diameter of the pipe. Flushing will reduce if not eliminate the discoloration of the water.

During flushing the velocity of the water in the lines needs to be great enough to pick up any sediment in the bottom of the lines. Listed below are the velocities required:

4 inch 180 to 200 gpm

6 inch 500 to 540 gpm

8 inch 1000 to 1100 gpm

12 inch or greater several mains may be required to obtain

The necessary velocity

Flushing may be accomplished by opening a fire hydrant and then exercising by opening and closing several valves located around the hydrant. The opening and closing of various valves will allow different lines to be flushed. When flushing the main water lines, several hydrants may need to be opened. The hydrant should be left open for a sufficient length of time to flush all the sediment out. The length of line to be flushed should be relatively short to ensure that all sediment is removed.

Care should be taken to prevent possible damage caused by discharge of water. No hydrant should be opened in an area where erosion of a lawn border, sidewalk, or gravel surface roadway can occur. Personnel should connect a long fire hose to the hydrant to prevent improper discharge. To adjust the flow it is sometimes desirable to install a valve on the hydrant being used for flushing.

Flushing should be conducted during off-peak night hours or at other off-peak times. If nighttime flushing is performed, signs warning motorists of "Water on Road" should be employed.

The fire hydrants used for flushing should be flushed several times to prevent the buildup of sediment in the barrel of the hydrant that could potentially clog the hydrant.

Maintenance

Any conditions that cannot be corrected during the regular inspection and testing should be recorded and reported for subsequent action by the Utilities Shop. Leakage, broken parts, hard operation, corrosion, and other major defects should be corrected by a crew as soon as possible after the defect is reported.

If repairs are to be performed in the field, the repair crew should take a full complement of spare parts to the job site.

Close the necessary valves that will isolate the valve to be repaired. This may require shutting service off to any buildings that will be isolated along with the valve to be repaired. The water main in which a valve repair was made should be immediately flushed to remove any debris in the line.

Disassemble the valve or hydrant in accordance with the procedure supplied by the manufacturer of the valve or hydrant.

Replace damaged parts and parts that show indication of wear, corrosion, or signs of incipient failure. Always replace gaskets, packing and seals.

Reassemble the valve or hydrant and open the adjacent valves and recharge the water main containing the valve or hydrant. Test the stem and valve connections for leakage.

While applying pressure to the main apply the pressure with a hydrant open and the next valve beyond the hydrant closed so that air can escape from the line.

Record the fact the valve or hydrant has been repaired and is in operable condition. Remove any marking indicating that the valve or hydrant is inoperable.

During maintenance if a section of the water main must be isolated, the Fire Department should be immediately informed that any fire hydrants on the section of water main will not have water.

All water valves that provide water to fire hydrants will be immediately repaired. If the valve cannot be repaired immediately, the Fire Department will be informed and the fire hydrant tagged to indicate that the fire hydrant is out of service.

Immediately upon repairing the valve, the fire hydrant will be tested to ensure proper function and to remove any debris from the fire hydrant. In addition the Fire Department will be informed that the fire hydrant is back in service and the out of service tag will be removed.

Record Keeping

In order to carry out a meaningful inspection and maintenance program, it is essential that each valve and hydrant be recorded as to location, make, type, size, and date of installation. Other information may be entered depending upon the nature of the record keeping system

used. Valve and hydrant locations and numbers are specified on the Directorate of Public Works Water Distribution System Maps.

When a valve or hydrant is inspected, an entry should be made in the record indicating date of inspection and condition. If repair work is necessary, then the nature

of the work required should be indicated. Upon completion of repair work, the nature of repairs, date, and other relevant information should be recorded.

Forms for keeping the maintenance, inspection and testing records are provided in the Appendices of the "Valve Plan" and the "Hydrant Plan".

Water Main Flushing

Water main flushing shall occur annually or after an unacceptable bacterial sample is obtained. Each water main flushing shall last long enough to assure that water discoloration or sediment has been cleared through the water main. The time required will vary based upon time of day and year and water use at the time of flushing.

The actual sequences of valves and hydrants to be opened and/or closed to flush a section of water main are listed in the Appendices. Strict adherence to the sequence is recommended; however, experimentation of opening and closing listed and additional valves and hydrants is encouraged should field conditions indicate a more effective flushing may be obtained.

Further, it is anticipated that new hydrants and valves will be installed and previously unknown valves may be discovered. Any new conditions noted should be recorded and reported to the Utilities Shop and Fire Department, DPW. This "Flushing Plan" and the "Valve Plan" and "Hydrant Plan" should be updated at least annually to incorporate system changes.

1. Purpose. The purpose of this SOP is to establish policies and procedures for implementing the Environmental Health section Water Quality Surveillance Program.
2. Scope. This SOP applies to all personnel assigned to the Environmental Health Section of Preventive Medicine Service. The program will include maintaining a state certified water laboratory, the collection, analysis and reporting of water samples from installations within the section's area of responsibility and providing technical guidance as required
3. References.
 - a. AR 40-5, Preventive Medicine, October 1990.
 - b. State Environmental Laboratory Certification Regulation, April 1980.
 - c. TB MED 576, Sanitary Control and Surveillance of Water Supplies at Fixed Installations, March 1982.
 - d. Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992.
 - e. EPA Manual for the Certification of Laboratories Analyzing Drinking Water, March 1997.

4. Responsibilities.

Environmental Science Officer:

Oversee all water laboratory activities.

Monitor the potable water supply and distribution systems at installations within the health service area to identify potential health hazards and ensure compliance with applicable federal and state laws and regulations.

NCOIC, Preventive Medicine Services:

Ensure all Environmental Health personnel are properly trained in sampling procedures to include sample collection, analysis and maintenance of the laboratory.

Designate a primary analyst who will have overall responsibility for water sample analysis and maintenance of the laboratory in accordance with the EPA and South Carolina State certification requirements (See 3b&c above).

c. Environmental Health Technician:

- (1) Perform sample collection and analysis of sites as instructed in Appendix A.

Ensure all bacteriological water quality tests are properly conducted and reported.

Ensure all reports and procedures are properly logged.

- (4) Maintain the water laboratory, which includes:

Cleaning of laboratory and equipment.

Calibration and maintenance of laboratory equipment, and

Performing quality control (QC) checks as outlined in Appendix G.

Ensure that safety precautions are taken when performing analysis to include the wear of eye protection.

5. Program Objectives.

- a. Conduct monthly collection and bacteriological analysis of water samples in accordance with reference 3b and 3d at all sites within this sections area of responsibility. (see Appendix A)

- b. Report the results of bacteriological analysis to state and installation authorities as required.

- c. Maintain state certification of the water laboratory for bacteriological analysis.

- d. Maintain a current set of plans and a map of Ft. Jackson's water distribution system.

- e. Perform chlorine residual and pH reading tests in conjunction with bacteriological sampling.

- f. Conduct fluoride analysis on tap water from the lab on a weekly basis. (See Appendix B)

- g. Complete the quarterly and annual fluoride quality assurance tests.

- h. Maintain liaison with appropriate federal, state and installation authorities as needed to maintain sanitary control of the installation's water supply and to ensure compliance with applicable regulations.

i. Assist and provide technical guidance to the installation's facilities engineers when special water problems arise such as water line repair, installation of new wells or lines, contamination of the water system, complaints, etc.

j. Arrange for heterotrophic plate count (HPC) analysis of a sample that has a ≤ 0.2 total chlorine residual reading to be sent to Access Analytical Service Laboratory. (See Appendix C)

6. Procedures:

a. Collection:

A minimum of 30 samples will be collected from the distribution line each month.

Sample collection points are found in Appendix A. This list is established by the Environmental Science Officer. A map of the distribution system showing all sampling points will be prepared and maintained in the Environmental Health Water Laboratory.

Water samples will be collected from outside water taps, which are free of aerators. Strainers, hose attachments, or purification devices. Non-mixing fixtures will be used when possible. If these devices are present at a collection point they will be removed prior to running the water. Samples will not be collected from hot water faucets, drinking fountains, or fixtures that are leaking.

Samples will be collected in approved, sterilized, disposable 100ml bottles containing sodium thiosulfate. Whirlpaks or colilert collection/culture vessels may also be used.

The pH meter will be calibrated with 4.0 and 7.0 standards before the water run and again during the water run with the results annotated on the sample form. (see Appendix D)

Calibration of the pocket colorimeter instrument will be conducted before the water run. See Appendix E for calibration and operation instructions.

(7) Samples will be collected using the following procedures:

Open the tap and allow the water to flow freely for three to five minutes to ensure that the sample water is coming directly from the water main.

While the water is running, determine the pH using the pH meter. Determine the free (FAC) and total (TAC) available chlorine residual of the water. If a residual of 0.5 or less is determined, call DLE Mr. Fanning at x6851 and inform him so that hydrant flushing can be performed in that area. If a residual of less than 0.2 is found, a second sample will be taken from the site for analysis as directed in Appendix C.

Record pertinent information on the sample form, i.e. time. TAC2, FAC2, and pH. The sample number, collection point, date, and time should also be written on the sample container using a grease pencil.

Reduce the flow of the tap to produce a small steady stream of water. Carefully remove the cap from the bottle by grasping the outside. Do not touch any surfaces, which will come in contact with the sample. Retain the cap in hand and fill the bottle to within 1/2 inch of the bottom of the neck (100ml) and affix the cap. Do not rinse or flush sample containers prior to collecting the sample.

Once the sample is collected it should be refrigerated and stored at a temperature below 40 deg F (4 deg C). A portable ice chest and commercially prepared ice packs will be used for Transportation: Samples should be delivered to the laboratory for analysis within six hours of collection. The time from sample collection to initiation of analysis may not exceed 30 hours.

b. Sample Analysis:

(1) Colilert Method for total coliforms and *E. coli*

Definition: The MMO-MUG test is based on a defined substrate orthonitrophenyl-*B*-D-galactopyranoside (ONPG) which is hydrolyzed by the constitutive enzyme-*B*-galactosidase. present in all total coliforms. In the same test, a second defined substrate, 4-methyl-umbelliferyl-*B*-D-glucuronide (MUG) is used specifically for the detection of *E. coli*. Since these ingredients are the only primary sources of carbon, the two coliform groups can grow and metabolize in the substrate but most other bacteria cannot.

Principle: The mechanism of a positive reaction is that the specific indicator nutrient substrates are hydrolyzed by the constitutive enzymes (that are always present in the cell) unique to total coliforms and *E. coli*. Total coliforms contain the constitutive enzyme *B*-galactosidase. If a coliform is present in the sample, it metabolizes the indicator nutrient ONPG, cleaving the bond between the nutrient portions (orthonitrophenyl) by hydrolysis. The nutrient portion of the molecule is ingested and used for growth. The indicator portion of the molecule, orthonitrophenyl, is now free and produces a yellow color (when bound to ONPG it is colorless). For every molecule of ONPG metabolized by the coliforms, a yellow ONP molecule is liberated, indicating the presence of coliforms.

Colilert reagent should be stored at 4 deg – 30deg C and away from light.

Thoroughly wash hands and work surface. Carefully separate one Snap Pack from the strip taking care not to accidentally open adjacent pack.

Tap the Snap Pack to ensure that all of the Colilert powder is in the bottom part of the pack.

Open the pack by snapping back the top at the scoreline. Do not touch the opening of the pack.

Add the contents of the pack to the sterile, transparent, non-fluorescent container of sample.

Aseptically cap and seal the container. Shake until dissolved.

Incubate for 24 hours at 35deg \pm 0.5 deg C. Read the results at 24 hours. Compare the results against the comparator.

If no yellow color is observed, the test is negative. If the sample is questionable. incubate an additional 4 hours. If the sample is coliform positive, the color will intensify. If it does not intensify the sample is negative. If it has a yellow color equal to or greater than the comparator, it is positive. If yellow is observed, check the container for fluorescence by placing a 6 watt 365nm UV light within 5 inches of the sample in a dark environment. Be sure the light is facing away from your eyes and towards the container. If fluorescence is greater than or equal to the fluorescence of the comparator, the presence of *E. coli* is confirmed.

Report results as total coliform present or absent in 100ml sample.

Disposal Vessels of confirmed Colilert can be autoclaved for 20 minutes at 121deg C in a biobag and then discarded. Alternately, after confirmed Colilert results have been recorded, open each vessel and add household bleach up to the top of the vessel. Cap tightly. mix and let stand for 20 minutes. Flush vessel contents. Discard the vessel in the trash.

QC. Each lot of media received into the laboratory must be checked by using known cultures of microorganisms before that lot is used for compliance monitoring purposes. *Escherichia coli* is the organism of choice as the positive control. *Pseudomonas aeruginosa* is the organism of choice as the negative control. Sterile deionized/distilled water should be pipetted into a single vessel of media and incubated as a sterility control Culture plates can be obtained from the microbiological lab manager at Moncrief Army Community Hospital. New culture plates must be obtained every two weeks and old plates discarded.

QC. On a weekly basis, or each week that the MMO-MUG medium is used, sterile/distilled water must be pipetted into one vessel of the MMO-MUG medium, inoculated with growth from a living agar slant of *Escherichia coli* and incubated as a known positive control or a known positive sample may be incubated (stream, creek, wastewater). On a weekly basis or each time that the MMO-MUG medium is used, sterile deionized/distilled water must be pipetted into a single vessel of the MMO-MUG medium and incubated as a sterility control.

QC. The MMO-MUG medium has a shelf life of twelve months from the date of manufacture and not the date of receipt into the laboratory.

QC. The color comparator has a shelf life of one year from the date of manufacture.

QC. See Appendix G for the list of the water laboratory quality control checks.

c. Reporting Procedures.

If a sample is found to be positive for total coliform or *E. coli*, the water lab supervisor, NCOIC, and the ESO must be notified.

Also notify the Directorate of Logistic and Engineering (DLE), Mr. Bill Fanning x6851, and the building manager of the building that the sample was taken from. A sample will be submitted to Access Analytical Service at 787-4043 for bacteriological analysis.

Resampling must be performed within 24 hours of your initial samples. A total of three repeat samples will be collected for each positive sample. One sample will be taken

within five service connections upstream and one sample within five service connections downstream of the initial positive sample. A sample is then taken from the initial location of the positive sample. Repeat samples will be collected until a negative result is obtained.

7. Quality Control:

The primary analyst will be responsible for ensuring that all quality control procedures are conducted and appropriate records maintained to include specific quality control requirements for equipment, reagent, analytical methodology, etc. (see Appendix G)

Quality Control will be check every quarter using studies from Environmental Resource Associates.

All results will be filed and saved as well as calibration records to ensure quality of equipment.

A SOP will be maintained and updated annually to include all quality control checks.

8. Additional Duties:

An adequate supply of sterile distilled water will be maintained in the laboratory at all times.

Technicians will do a monthly inventory ensuring that at least a 60 day supply of necessary materials are on hand in the laboratory. Technicians will prepare a list of needed supplies or equipment and submit to the NCOIC for requisition.

Instructions for all laboratory equipment will be maintained in the laboratory. Equipment of particular concern includes the pH and fluoride meter, the autoclave, temperature monitoring devices, incubators, and refrigerators. Technicians will be responsible for performing any user maintenance prescribed in the manufacturer's instructions. Equipment failures or other maintenance problems will be reported to the NCOIC. Maintenance protocol and required quality control can be found in the equipment maintenance folder.

A laboratory suitability test is required annually on the distilled water. If sterile distilled water is purchased from a supply vendor, the reagent water quality control checks listed in the EPA's Drinking Water Manual do not have to be performed.

ENCLS:

1. Appendix A: Sampling Site Plan
2. Appendix B: Fluoride Analysis
3. Appendix C: Carolina Consulting Procedures and Chain of Custody Form
4. Appendix D: pH meter calibration and log sheet
5. Appendix E: Pocket Colorimeter Instrument Calibration and Procedures
6. Appendix F: Colilert Reagent QA Test form
7. Appendix G: Water Quality Control Checklist
8. Appendix H: Weekly Water Analysis Form
9. Appendix I: Chlorine Colorimeter Calibration Worksheet

APPENDIX A

SAMPLE SITING PLAN FOR BACTERIOLOGICAL MONITORING OF THE FORT JACKSON WATER DISTRIBUTION SYSTEM

1. Ft. Jackson purchases its drinking water from the city of Columbia. The distribution system serves approximately 24,000 people. We are required to collect a minimum of 30 routine coliform samples per month. Details for sampling at each type of system are described in the following paragraphs.
2. Distribution System: DHEC system # 40002.
 - a. This appendix lists 28 sampling points for the distribution system (distribution points are identified as D#). Routine total coliform samples will be collected each week. A map showing the location of each of the sampling sites is found in the water lab.
 - b. Each sample will be analyzed for total coliform using the Colilert present/absent method. Chlorine residual and pH will be measured at each site when the sample is taken. (See Appendix D).
 - c. If a routine sample is total coliform positive, a set of repeat samples will be collected within 24 hours of reading the positive result, and normally will be collected as soon as possible after the sample is read and verification procedures have been implemented. A total of three repeat samples will be collected for each positive sample. One sample will be taken within five service connections upstream and one sample within five service connections downstream of the initial positive sample. A sample is then taken from the initial location of the positive sample. Repeat samples will be collected until a negative result is obtained.
3. Field Samples

- a. Two random field water samples will be collected each week from locations as indicated on the weekly sampling forms. A field sample is defined as a sample from a field water container (five-gallon can, lyster bag, or water trailer) used by a unit during training.
- b. Verification and re-sampling is not required for field samples. The unit owning the water container will be notified of the positive sample and they will be provided instructions on water container and field water disinfectant.

APPENDIX B

PROCEDURE FOR DETERMINING THE FLUORIDE CONCENTRATION OF DRINKING WATER USING THE HACH MODEL DR 100 pH/FLUORIDE METER

1. **PURPOSE.** The purpose of this appendix is to outline the procedures for testing the fluoride concentration of the drinking water on this installation.

2. PROCEDURES:

- a. Using a 10-ml., Class A volumetric pipette and pipette filler, transfer 10.0 ml of deionized water into a clean dry sample cell. See Notes A, B and C in DR100 Manual
- b. Rinse the 10-ml pipette several times with small portions of the water sample to be tested. Transfer 10.0 ml of the water sample into another clean dry sample cell. See Notes D and E in DR 100 Manual.
- c. Using the pipette filler and a 2-ml Class A volumetric pipette, transfer 2.0 ml of SPADNS Reagent into each sample cell. Cap the cell and swirl to mix. Allow one minute for complete color development.
- d. Open the light shield and turn the Right Set control fully clockwise. Insert the 1.0-cm cell holder into the Left Set position of the sample well. Press down firmly to seat it into place. Close the light shield.
- e. While holding the "On" button down, adjust the Left Set control to align the meter needle with the arrow at the extreme left of the scale arc. Open the light shields and remove the cell holder.
- f. Place the sample cell containing the deionized water into the sample well. Press down firmly to seat the sample cell. Close the light shield. While holding the On button down, adjust the Right Set control for a reading of zero mg/L on the upper (0-2 mg/L) scale.
- g. Place the prepared sample into the sample well. Press down firmly to seat the sample cell; then close the light shield. Hold the On button down until the meter reading stabilizes. Read and record the mg/L fluoride from the upper (0-2 mg/L) scale, or use the lower (0-8 mg/L) scale if using the dilution procedure found in Note D. See Notes F and G in DR 100 Manual.

APPENDIX C

PROCEDURES FOR CAROLINA CONSULTING LABORATORY ANALYSIS

1. If a chlorine residual of less than 0.2 is found. The following must be done.
 - a. Access Analytical. "Chain of Custody Record" form must be filled out correctly.
 - b. The form along with a 2 liter sample will be taken to Access Analytical Laboratory.
 - c. The result will be documented on DHEC Surface Water System Monthly Report Form.
2. The proper form is attached to this appendix.
3. If the contract number expires or is renewed the new number can be obtain through Environmental Branch DPW ext. 6851.

APPENDIX D

CALIBRATION AND USAGE OF P.H. METER

1. PURPOSE: The purpose of this appendix is to outline the procedures for calibrating and usage of a pH meter.
2. PROCEDURES IN CALIBRATING THE pH METER:
 - a. Calibrate the pH meter prior to performing a drinking bacteriological test. Ensure that the pH meter is properly working by performing P.M.C.S. (Preventive Maintenance Checks and Services).
 - b. Sample preparation.
 - (1) Measure 50 ml of distilled water on sterile cylinder, pour one each into a two sterile beakers.
 - (2) Add the contents of one 7.00 mg/L buffer powder pillow to one beaker and stir until dissolved. This will be your 7.00 working solution.
 - (3) Add the contents of one 4.01 mg/L buffer powder pillow to one beaker and stir until dissolved. This will be your 4.01 working solution.

NOTE: IF YOU ARE PERFORMING SWIMMING POOL BACTERIOLOGICAL TESTING USE THE 4.01 mg/L AND 10.00 mg/L POWDER PILLOW TO CALIBRATE THE pH METER.

Calibration of the pH meter.

- (1) Turn on the pH meter, press "CAL" key.

Press the top of the probe once to release gel, place the pH meter Probe into 4.01 mg/L beaker. Press the "READ" key. Allow the pH to soak in the solution until the meter stabilizes and beeps with the reading. Rinse with Deionize Water.

After it beeps, is ready for the second reading. Repeat with the 7.00 mg/L beaker.

Repeat same procedure with the 10.01mg/L solution.

After reading two or three of the calibration samples record the slope which should be

-58 + or - 2MV's.

After calibration is completed record all results into the pH meter log sheets.

d. Usage of pH in a water sample.

(1) Rinse the small beaker three times each sampling point prior to taking a sample. Also, rinse the pH meter (bulb) prior to testing each sampling point with Dionized water.

(2) Turn the pH meter ON and place the probe in the sample water. Press "READ" key, let it stabilize prior to taking a reading. Record the reading in your bacteriological testing work sheet.

APPENDIX E

POCKET COLORIMETER INSTRUMENT PROCEDURES

Before testing, make sure the instrument is in the correct range mode. For the 0 to 2.00 mg/L Free and Total Chlorine tests, the instrument should be in the low (LO) range mode. For the high range Total Chlorine test, the instrument should be in the high (HI) range mode.

FREE CHLORINE

1. Fill a 10-ml cell to the 10-ml line with sample (the blank). Cap.
2. Remove the instrument cap.
3. Place the blank in the cell holder, with the diamond mark facing you. Tightly cover the cell with the instrument cap (flat side should face the back of the instrument).
4. Press "ZERO" key. The instrument will turn on and the display will show then 0.00.
5. Remove the cell from the cell holder.
6. Fill a 10-ml cell to the 10-ml line with sample.
7. Add the contents of one DPD Free Chlorine Powder Pillow to the sample cell (the prepared sample). Cap and shake gently for 20 seconds.
8. Within one minute after adding DPD to the sample, place the prepared sample in the cell holder. A pink color will develop if chlorine is present.
9. Tightly cover the cell with the instrument cap (flat side should face the back of the instrument).
10. Press "READ" key. The instrument will show followed by the results in mg/L. free chlorine.

TOTAL CHLORINE

1. Fill a 10-ml cell to the 10-ml line with sample.
2. Add the contents of two DPD Total Chlorine Powder Pillows to the sample cell (the prepared sample). Cap and shake gently for 20 seconds.
3. Wait 3 minutes. During this period, proceed to steps 4-8.

4. Insert the 1-cm cell adapter into the instrument by aligning the tabs on the adapter with the slots in the right side of the cell holder.
5. Fill a 1-cm sample cell with the sample (the blank).
6. Place the blank in the cell holder, with the diamond mark facing you. Tightly cover the cell with the instrument cap (flat side should face the back of the instrument).
7. Press "ZERO". The instrument will turn on and the display will show --- then 0.0.
8. Fill a 1-cm cell with the solution from the 10-mL cell in step 2.
9. After the three-minute period, place the sample cell in the prepared cell holder.
10. Tightly cover the cell with the instrument cap (flat side should face the back of the instrument).
11. Press "READ". The instrument will show --- followed by the results in mg/L chlorine (Cl_2).

PREPARING THE CHLORINE CALIBRATION STANDARD SOLUTION

1. Snap the neck off a Chlorine Voluette Ampoule Standard Solution.
2. Pipette 2.00 ml of chlorine standard from the Voluette Ampoule into a 100-ml graduated cylinder.
3. Use the following formula to calculate the final volume of the diluted chlorine standard:
$$1.11 \times \text{concentration of chlorine standard in Voluette Ampoule} = \text{final volume (ml)}$$
4. Using demineralized water, dilute the 2.00ml of chlorine standard transferred to the graduated cylinder to the final volume calculated in Step 3. This is the chlorine standard working solution. Use this standard for calibration immediately--the chlorine concentration will decrease with time.

INSTRUMENT CALIBRATION

1. Begin calibrating the Pocket Colorimeter instrument by ensuring it is in the correct range you wish to calibrate. To determine which range the instrument is in, press the ZERO or READ key and look at the display.
2. Press both the ZERO and READ keys simultaneously and hold them down for two seconds. The display will show "CAL", followed by a flashing "0".
3. Insert the blank into the cell holder. Cover the sample cell with the instrument cap (the blank is untreated sample water).
4. Press the ZERO key. The instrument will display "---" followed by "1.60" for chlorine or "std" for pH.
5. Follow the appropriate calorimetric procedure to develop the color in 10 ml of the working standard solution. This is the prepared chlorine standard solution.
6. Using 10-mL sample cells, measure the prepared chlorine standard solution concentration against a deionized water blank with an alternative instrument such as a DR/700.

7. Press the ZERO or READ key to change (by scrolling up) the displayed “1.60” (“1.6” for high range) to the concentration value determined for the prepared chlorine standard solution
8. Press both the ZERO and READ keys simultaneously and hold them until “Std” appears in the display.
9. For the high range calibration only-transfer at least 1 ml of the reacted chlorine standard solution from the 10-ml cell to a 1-cm sample cell. For the low range calibration-use the 10-ml sample cell. Insert the reacted chlorine standard solution into the cell holder. Cover the sample cell with the instrument cap.
10. Press the READ key. The instrument will compute the calibration and then display the value entered for the standard
11. The calibration is complete. The instrument will use this calibration to determine the displayed concentration for future sample measurements.

APPENDIX G
COLILERT REAGENT QA TEST FORM

INSTALLATION: FT. JACKSON, SC PREVENTIVE MEDICINE SERVICE	COLILERT REAGENT QUALITY ASSURANCE TEST		LABORATORY ID NUMBER 40002
DATE/TIME TEST CONDUCTED:			
CONTROL SAMPLE	COLIFOR M P/A (PRESENT / ABSENT)	FLUORE SCENT + / -	REM ARKS
STERIL CONTROL			
E-COLI CONTROL			
PSEUDOMONAS AERGINOSA CONTROL			
DATE REAGENT RECEIVED:			
LOT #:			
EXPIRATION DATE:			

COMMENTS:
LAB TECH'S SIGNATURE:
LAB SUPERVISOR'S SIGNATURE:
LAB MANAGER'S SIGNATURE:

APPENDIX G
WATER QUALITY CONTROL CHECKLIST

WEEKLY TASK	1 S T	2 N D	3 R D	4 T H
1. WATER ANALYSIS CONTROLS (POS & NEG)				
2. COLILERT BOTTLE STERILITY CHECK				
3. pH Meter Calibration (Before H2O Run, Record on Calibration Sheet)				
4. pH Meter Calibration (During H2O Run, Record on H2O Analysis				

Sheet)				
5. FLUORIDE METER CALIBRATION				
6. FLUORIDE TEST ON LAB WATER				
7. AUTOCLAVE QC W/BIOLOGICAL INDICATOR				
8. VERIFY TEMPERATURE ON AUTOCLAVE				
9. CLEAN/STERILIZE LAB EQUIPMENT				
DONE AS NEEDED	DATE COMPLETED			I N T
1. RECORD DATE COLILERT REAGENT RECEIVED, LOT #, EXP DATE				
2. RECORD DATE COLIL. COMPARATOR RECEIVED, LOT #, EXP DATE				
3. QC COLILERT REAGENT: Positive/Negative				
4. QC BOTTLES: Sterility on each new lot				
5. RECORD DATE BUFFER SOLUTION RECEIVED, LOT #, EXP DATE				
6. RECORD STERILIZER CYCLE TIME, DATE, & TEMPERATURE				
7. DEFROST REFRIGERATORS				
8. RECORD DAILY QC CHECKS ON REFRIGERATOR & INCUBATOR				
MONTHLY TASKS				
1. DRAIN, CLEAN, REFILL STERILIZER				
2. INVENTORY H2O LAB SUPPLIES				
QUATERLY TASKS				
1. CHECK AUTOCLAVE TIMING WITH STOPWATCH				
2. ERA QC FOR pH, CL2, FLUORIDE				
ANNUAL TASKS				
1. EPA CERT FOR pH, CL2, P/A				
2. UPDATE SOP				

APPENDIX H
WEEKLY WATER ANALYSIS FORM

WATER ANALYSIS LOG SHEET					WEEK 1			
INSTALLATION: FT. JACKSON, SC PREVENTIVE MEDICINE SERVICES			TECHNIQUE/METHOD: COLILERT MMO-MG			LAB ID NUMBER: 40002		
COLLECTION DATE:			COLLECTED BY:					
LAB ARRIVAL TIME:			LAB TECH:					
TIME IN INCUBATOR:			LAB SUPERVISOR:					
DATE/TIME READ:			LAB MANAGER:					
GENERAL INFORMATION								
SAMPLE #	BLDG #, NAME, SAMPLE LOCATION	TIME	TOTAL	FC	pH	PHOS	P/ATCTAL	P/ATCTAL
11-01-1								
11-01-2								
11-01-3								
11-01-4								
11-01-5								
11-01-6								

11-07								
11-08								
11-09								
V1-35	NORMANDY WELL							
V1-36	ALGIER WELL							
F1-42	FTX SITE							
F1-43	RANGE ON DIXIE RD							
STERILITY CONTROL						RESULTS:		
POSITIVE CONTROL						RESULTS:		
CALIBRATIONS								
pH CALIB TIME_____ SLOPE_____ STANDARD SLOPE -58 +/- 3 STANDARDS USED: ? 4.01 ? 7.00 ? 10.01					CLH METER CALIB TIME_____ FLURIDE METER CALIB TIME_____			
CODES								
D = DISTRIBUTION SYSTEM F = FIELD WATER SITE								
FLUORIDE								
SAMPLES TAKEN FROM:						# SAMPLES TAKEN_____		
? REPORTED TO:_____ DATE:_____								

COMMENTS:

WATER ANALYSIS LOG SHEET					WEEK 2			
INSTALLATION: FT. JACKSON, SC PREVENTIVE MEDICINE SERVICES			TECHNIQUE/METHOD: COLILERT MMO-MG			LAB ID NUMBER: 40002		
COLLECTION DATE:			COLLECTED BY:					
LAB ARRIVAL TIME:			LAB TECH:					
TIME IN INCUBATOR:			LAB SUPERVISOR:					
DATE/TIME READ:			LAB MANAGER:					
GENERAL INFORMATION								
SAMPLE #	BLDG #, NAME, SAMPLE LOCATION	TIME	TOTAL	FCL	pH	PHOS	P/ATCTAL	P/ATCTAL
12-11-0								
12-11-1								
12-11-2								
12-11-3								
12-11-4								

1 2 - 1 5								
1 2 - 1 6								
1 2 - 1 7								
1 2 - 3 2	METER STATION 1 OR 2							
V 2 - 3 7	AMMO SUPPLY POINT WELL							
V 2 - 3 8	OMAHA BEACH WELL							
F 2 - 4 4	RANGE ON WILDCAT RD							
F 2 - 4 5	RANGE ON DIXIE RD							
STERILITY CONTROL							RESULTS:	
POSITIVE CONTROL							RESULTS:	
CALIBRATIONS								
pH CALIB TIME_____ SLOPE_____ STANDARD SLOPE -58 +/- 3 STANDARDS USED: ? 4.01 ? 7.00 ? 10.01					CLH METER CALIB TIME _____ FLURIDE METER CALIB TIME _____			
CODES								
D = DISTRIBUTION SYSTEM F = FIELD WATER SITE								

FLUORIDE	
SAMPLES TAKEN FROM:	# SAMPLES TAKEN_____
? REPORTED TO:_____ DATE:_____	
COMMENTS:	

WATER ANALYSIS LOG SHEET					WEEK 3			
INSTALLATION: FT. JACKSON, SC PREVENTIVE MEDICINE SERVICES			TECHNIQUE/METHOD: COLILERT MMO-MG		LAB ID NUMBER: 40002			
COLLECTION DATE:			COLLECTED BY:					
LAB ARRIVAL TIME:			LAB TECH:					
TIME IN INCUBATOR:			LAB SUPERVISOR:					
DATE/TIME READ:			LAB MANAGER:					
GENERAL INFORMATION								
S I T E #	BLDG #, NAME, SAMPLE LOCATION	T I M E	T O T A L	F C L	p H	P H O S	P / A T C T A L	P / A T C T I V E
13-118								
13-119								
13-120								

1 3 - 2 1								
1 3 - 2 2								
1 3 - 2 3								
1 3 - 2 4								
1 3 - 3 3	METER STATION 3 OR 4							
V 3 - 3 9	TWIN LAKES WELL							
F 3 - 4 6	RANGE ON HARTSVILLE GUARD							
F 3 - 4 7	RANGE ON DIXIE RD							
STERILITY CONTROL						RESULTS:		
POSITIVE CONTROL						RESULTS:		
CALIBRATIONS								
pH CALIB TIME_____ SLOPE_____ STANDARD SLOPE -58 +/- 3 STANDARDS USED: ? 4.01 ? 7.00 ? 10.01					CLH METER CALIB TIME _____ FLURIDE METER CALIB TIME _____			
CODES								
D = DISTRIBUTION SYSTEM F = FIELD WATER SITE								

FLUORIDE	
SAMPLES TAKEN FROM:	# SAMPLES TAKEN_____
? REPORTED TO:_____ DATE:_____	
COMMENTS:	

WATER ANALYSIS LOG SHEET					WEEK 4			
INSTALLATION: FT. JACKSON, SC PREVENTIVE MEDICINE SERVICES			TECHNIQUE/METHOD: COLILERT MMO-MG		LAB ID NUMBER: 40002			
COLLECTION DATE:			COLLECTED BY:					
LAB ARRIVAL TIME:			LAB TECH:					
TIME IN INCUBATOR:			LAB SUPERVISOR:					
DATE/TIME READ:			LAB MANAGER:					
GENERAL INFORMATION								
S I T E #	BLDG #, NAME, SAMPLE LOCATION	T I M E	T C L	F C L	p H	P H O S	P / A T C T A L	P / A T C T A L
14-25								
14-26								
14-27								

I 4 - 2 8								
I 4 - 2 9								
I 4 - 3 0								
I 4 - 3 1								
I 4 - 3 4	METER STATION 5 OR 6							
V 4 - 4 0	WESTON LAKE							
V 4 - 4 1	RANGE 20 ON HARTSVILLE GUARD							
I 4 - 4 8	FTX SITE							
STERILITY CONTROL						RESULTS:		
POSITIVE CONTROL						RESULTS:		
CALIBRATIONS								
pH CALIB TIME_____ SLOPE_____ STANDARD SLOPE -58 +/- 3 STANDARDS USED: ? 4.01 ? 7.00 ? 10.01					CLH METER CALIB TIME_____ FLURIDE METER CALIB TIME_____			
CODES								
D = DISTRIBUTION SYSTEM F = FIELD WATER SITE								

FLUORIDE	
SAMPLES TAKEN FROM:	# SAMPLES TAKEN _____
? REPORTED TO: _____ DATE: _____	
COMMENTS:	

APPENDIX I
CHLORINE COLORIMETER CALIBRATION WORKSHEET

CHLORINE COLORIMETER				
CALIBRATION WORKSHEET				
CHLORINE KIT #	ACTUAL READING AT EACH KNOW VALUE			ADJUSTME NT REQUIRED
	0.5 mg/l	1.0 mg/l	2.0 mg/l	

REMARKS:	
DATE:	NEXT CALIBRATION DUE:

Attachment 3

DEPARTMENT OF THE ARMY

HQ, UNITED STATES ARMY TRAINING CENTER & FORT JACKSON

FORT JACKSON, SOUTH CAROLINA 29207

12 SEPTEMBER 2000

DIRECTORATE OF LOGISTICS AND ENGINEERING
MAINTENANCE SERVICES DIVISION
FACILITIES MAINTENANCE SECTION

STANDARD OPERATING PROCEDURES
WELL OPERATION

PURPOSE: To describe procedures and responsibilities for the operation of the wells located throughout post.

POLICY: It is the policy of this branch to conduct maintenance and operational procedures to insure that the wells remain in an operational condition.

SCOPE: Efforts will be directed toward upkeep and maintenance of wells.

RESPONSIBILITIES: The operational condition is a responsibility of the water treatment plant operators assigned to the plumbing section. All DLE personnel will actively support the policy stated in paragraph 2 above. Necessary corrective actions will be initiated on the spot or through emergency service work.

PROCEDURES:

Wells must be checked daily.

Check chemical level in solution tank and fill as needed. To fill tanks:

Empty solution tank, add 1000ml sodium hypochlorite and fill the tank with 100 liters of water.

Half solution tank, add 500 ml of sodium hypochlorite and add 50 liters of water.

Check free chlorine residual:

0.3 to 0.5 PPM free chlorine should properly disinfect the water supply.

Standard Operating Procedures - Well Operation

Adjust chemical feed pump accordingly.

Flush storage tank to start pump to ensure proper working order of pressure switch and flow meter.

Chemical feed pump should run with well pump.

If the well pump cycles too frequently this is an indication of a waterlogged tank (tank full of water with no room for air pressure). Corrective measures would be to turn the pump off, drain the tank to allow air to enter or use the air compressor available at some wells to pump air into the tank. Restart the pump.

Pressure switch operation: Pressure switches are adjustable. Cut out & in operation should be checked weekly and adjusted as necessary to maintain proper pressure.

Check all fittings, pipes, valves; repair as needed.

Exercise valves on a weekly basis.

Record water usage, electrical hours, and free chlorine residual daily.

Well lining or major repairs will be directed to the Environmental and Engineering Divisions by work order (DA Form 4283). The Facility Maintenance Section will provide information supporting the request.

Permits, contracts, consultants, and engineering are the Engineering Division's responsibility.

The Environmental Division will review and oversee progress and contract work to ensure water quality.

Water testing map is attachment 1.

The Facility maintenance Supervisor will review and update this SOP as required but at least annually.

Attachment 4

DEPARTMENT OF THE ARMY

HQ, UNITED STATES ARMY TRAINING CENTER & FORT JACKSON

FORT JACKSON, SOUTH CAROLINA 29207

12 SEPTEMBER 2000

DIRECTORATE OF LOGISTICS AND ENGINEERING

MAINTENANCE SERVICES DIVISION

FACILITIES MAINTENANCE SECTION

EMERGENCY PREPAREDNESS PLAN

DRINKING WATER SYSTEMS

PURPOSE: To establish minimum requirements to meet the public water supply emergencies.

GENERAL:

ROUTINE EMERGENCY work will be accomplished according to the Facility Maintenance Section Standard Operating Procedures. Work in this area typically consists of components or sub-systems, which can be isolated for repair.

EMERGENCY (DISASTER) work which cannot be performed, as routine emergency service order work will be accomplished in accordance with this SOP. Emergency (Disaster) work is characterized by the whole system or several components or sub-systems not functioning.

PLAN:

This plan will be used when routine emergency service order work cannot restore the system to normal operation. Typical circumstances for implementation of this plan are:

System contamination.

System pressure less than 10 psi.

Major line outages.

Contractor generated cuts in lines.

COORDINATING INSTRUCTIONS: Upon determination by the maintenance mechanics and Fire Prevention and Protection Division (fire department) personnel that repairs are beyond routine emergency repair, the following activities shall be notified. Coordinated efforts will be made through the EOC regarding notification to the public and coordination of work for a major system failure.

Fort Jackson Directorate of Logistics and Engineering division chiefs, branch chiefs, section foremen, and craftsmen, as appropriate:

Director DLE	Mr. Burchett	751-7640	
Deputy Director DLE			
Engineering Division Chief	Mr. Cooper	751-5641	428-5852
Environmental Division Chief	Mr. Burghardt	751-7702	736-4565
Environmental Mgmt. Office	Mr. Fanning	751-6851	781-9070
Maintenance Services Chief	Mr. Shealy	751-2708	345-2164
Maintenance Services Sup.	Mr. Williams	751-1924	438-5058
Facility Maintenance Sup.	Mr. Armentrout	751-5245	425-8636
Facility Maintenance Sup.	Mr. Alexander	751-5546	482-7189
Maintenance Personnel	Mr. Fralix	751-6094	808-0835
	Mr. Ridgeway	751-6094	333-0075
	Mr. Anderson	751-6094	353-8901
	Mr. MacDonald	751-6094	736-6410

Columbia Water Plant (24 hours), 733-8336.

Chief of Staff 's office, 751-5116 (Fort Jackson EOC SOP).

SCDHEC, Water Supply Division, 734-5310.

SCDHEC, Central Midlands District office 935-7015.

Richland County Emergency Preparedness, 254-9296.

Emergency Water Supply – initiate DLE SOP section III, part 3, Water Distribution Emergency Maintenance and Flushing Program (operate Magruder pump Station if possible).

Supply/Materials – DLE Chief Engineer Supply, Mr. Saunders, 751-7370.

Emergency Power – telephone South Carolina Electric and Gas concerning electrical or gas requirements (electric – 748-3027, gas – 748-3462). Use service contracts as necessary.

Emergency Water – upon identification and notification of problems, notify the City of Columbia, telephone 733-8270, concerning a problem that is systematic or peculiar to Fort Jackson.

Upon completion of the remediation of the problem/work, the EOC will direct closure of work activities.

REVIEW: The Facility Maintenance Supervisor is responsible for reviewing and revising this SOP as required by changes to federal, state, and local laws. This SOP shall be completely reviewed, and revised as necessary, at least annually.

Attachment 5

Department of the Army

Headquarters, United States Army Training Center and Fort Jackson

Fort Jackson, South Carolina, 29207

October 31, 2001

DIRECTORATE OF LOGISTICS & ENGINEERING

PUBLIC SAFETY & ENVIRONMENTAL SERVICES DIVISION

FIRE PREVENTION & PROTECTION DIVISION

OPERATING INSTRUCTION #37

FIRE HYDRANT MAINTENANCE

Purpose: To establish guidelines for testing, record keeping, painting and numbering of fire hydrants.

References: AR 420-90, AR 420-46, International Fire Service Training Association (NFPA) #1 and #4, Installation Design Guide (IDG).

1. Fire flow testing will be performed IAW AR 420-46 and IFSTA Manual #4 (current edition). Each hydrant will be tested at least annually or as needed following major water line repairs or to determine water flow requirements on new construction or renovation projects. Results will be documented on DA Form 5384-R or applicable electronic software database approved by the Fire Chief. Copies of all results will be made available to the Fire Chief.
2. Sprinkler flow tests will be conducted when requested for new construction or renovation projects. The results will be furnished to the appropriate contractor and The Fort Jackson Fire Department.
3. A permanent record of each fire hydrant will be kept utilizing a database used and approved by the Fire Department. Each record will have the following information:
 - . Hydrant number as assigned by the Fort Jackson Fire Department
 - . A brief location description utilizing building number and street name
 - . The make and coefficient factor of the hydrant
 - . The static and residual pressures

- . The fire flow results with date and time of test
- . If hydrant is out of service or not

4. IAW IDG 7.9.2., fire hydrants that produce less than 500 GPM are to be painted cream - Federal Standard 595a #33717. Fire hydrants that produce between 500-1000 GPM are to have a standard cream body with all nozzle caps to be dark brown - Federal Standard 595a #20095. Fire hydrants that produce more than 1,000 GPM are to have a standard cream body with the top bonnet only to be painted the standard dark brown. Clear reflective beads will be sprayed on the caps after they
Fire Prevention & Protection Division
Operating Instruction #37, Fire Hydrant Maintenance

have been lacquered with paint. Numbers will be placed on the barrel in 3" contrasting colors that are visible from the street. Hydrants will be painted if discolored, chipped or damaged in any manner. New hydrants will be painted immediately after installation. Blue reflectors will be placed in the roadway on the same side as the hydrant is located IAW the IDG.

5. Protective barriers will be installed around hydrants when subject to vehicular traffic damage (i.e. in a parking lot) and painted similarly to the hydrant.
6. Maintenance inspections will be conducted IAW IFSTA, chapter #1 (current edition), Water Supplies for Fire Protection, to include proper lubrication procedures. "Out of Service" signs will be placed on hydrants that are inoperable because of maintenance or low water flow as determined by the Fire Chief. The Fire Department will be notified when hydrants become out of service and/or returned to service.
7. This SOP will be reviewed annually by all fire department personnel.

4. The following are responses to questions proposed by prospective offerors during various site visits.

Q: Page 3, paragraph 4 states 16 pressure regulator stations and page 4, table 1 shows 9 pressure reduction stations. Which is correct?

A: Fort Jackson does not guarantee absolute accuracy of the data provided. The contractor shall determine accuracy if absolute accuracy is required. There are 21 pressure regulators that reduce pressure to more than one facility. There is also a pressure regulator for the entire distribution system just after the supply distribution system owner's gas meters. The meters are located as follows:

(1) Near Corner of Marion Ave. and Washington Rd.

(2) Near Corner of Washington Rd. and Hall St.

(3 & 4) Along Washington Rd. between Hall St. and laundry.

(5) Washington Rd next to regulator and meter station for Energy Plant Bldg. 1699.

(6) Marion Ave. near bldg. 2435.

(7) Sumter Ave. between bldg. 2210 & 2220.

(8) Sumter Ave. near bldg. 2139.

(9) Sumter Ave. near bldg. 2260.

(10) Sumter Ave. near bldg. 3260.

(11) Sumter between bldg 4210 & 4220.

(12) Corner of Hill St. & Sumter Ave.

(13) Corner of Hill St. & Magruder Ave.

(14) Corner of Hill St. & Marion Ave.

(15) Across Hill St. from Hospital

(16) Corner of Forrest Drive & Mosby St.

(17) Imboden near School Building 5715

(18) Imboden and Faison Ct.

(19) Moses near Burt Rd

(20) Gilmer Ave. near Bldg 3715

(21) Commissary Way and Hill St.

Q: Page 4, table 1 shows 38 in-line meters and page 6, table 5 lists 37 secondary meter locations. Which is correct?

A: There are undocumented meters that have never been read nor maintained. The facility and meters reading multiple facilities (Area meter) in the revised table 5 are to be maintained and read monthly.

Q: How many meters other than the secondary meters are included?

A: There are meters in table 5 listed under the heading User/Function as Area which are the only meters other than individual facility meters.

Q: Are the meters to the energy facilities included in the facilities being sold?

A: Yes

Q: Is the propane-air facility serving the laundry included in the assets being sold? Where is the point of transfer?

A: No. The propane-air facility serving the laundry was constructed as part of the laundry.

Q: Where is the point of transfer for the main propane-air facility?

A: The transfer will be on the distribution side of the valve just inside the fence around the facility.

Q: Section J02.10 Points of Demarcation

In each of the scenarios shown on page 9 of this section, can the point of demarcation be defined as the mechanical connection at or near the point shown on the sketch? i.e. in sketch 1, the point would be the first mechanical connection following the meter; in sketch 4, the point would be the last mechanical connection before the pipe penetrates the building wall

A: The point of demarcation can be defined as the last mechanical connection before the pipe penetrates the building envelope.